

**Application No.: 10/774,598****Docket No.: 4459-090A****AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:*****1-5. (cancelled)***

6. **(currently amended)** A test assembly for an integrated circuit package, the test assembly comprising:

a package substrate having a plurality of first contact pads adapted for receiving solder bumps and a plurality of first conductors connecting selected pairs of said first contact pads; and

a test board having a plurality of second contact pads, a pair of major test pads, a plurality of minor test pads connected to selected ones of said second contact pads, and a plurality of second conductors connecting selected pairs of the second contact pads, wherein all of the second contact pads are divided into a plurality of groups such that all of the second contact pads in the same group are arranged in a line,

wherein, when the package substrate is mounted on the test board with each of said solder bumps soldered to one of the first contact pads and one of the second contact pads,

all of the pairs of connected second contact pads and the corresponding pairs of connected first contact pads form a conductive path that passes through all of the solder bumps,

each of said groups of connected second contact pads and the corresponding connected first contact pads form a closed circuit through all of the solder bumps therebetween when said major test pads are probed, and

when one pair of the minor test pads is ~~[[probe]]~~ probed, only one of said groups of the second contact pads and the corresponding connected first contact pads form another closed circuit

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through all of the solder bumps therebetween.

7. (previously presented) The test assembly as claimed in claim 6, wherein all of the second contact pads belong to the closed circuit when the major test pads are probed.

8. (previously presented) The test assembly as claimed in claim 6, wherein the package substrate is a ball grid array substrate.

9. (new) The test assembly as claimed in claim 6, wherein all of the second contact pads in the same group are arranged in a straight line.

10. (new) The test assembly of claim 9, wherein said straight line is parallel to an edge of said test board.

11. (new) The test assembly of claim 9, wherein said conductive path includes at least one spiral section extending around a central area of the test board.

12. (new) The test assembly of claim 9, wherein said conductive path includes two spiral sections extending around a central area of the test board, an end of one of said spiral sections is connected to an end of the other spiral section by one of said second conductors, the other ends of said spirals sections are connected to said major test pads so that the entire conductive path belong to said closed circuit when said major test pads are probed.

13. (new) The test assembly of claim 6, wherein said conductive path includes at least one spiral section extending around a central area of the test board.

14. (new) The test assembly of claim 6, wherein said conductive path includes two

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spiral sections extending around a central area of the test board, an end of one of said spiral sections is connected to an end of the other spiral section by one of said second conductors, the other ends of said spirals sections are connected to said major test pads so that the entire conductive path belong to said closed circuit when said major test pads are probed.

15. **(new)** A test board for testing an integrated circuit package, the test board comprising:

a plurality of contact pads,

a pair of major test pads and a plurality of minor test pads connected to selected ones of said contact pads, and

a plurality of conductors connecting selected pairs of the second contact pads,

wherein the contact pads are divided into a plurality of groups such that all of the contact pads and all of the associated conductors in the same group are arranged in a straight line, and the contact pads at the ends of said straight line are connected to one pair of said minor test pads, respectively.

16. **(new)** The test board of claim 15, wherein the straight lines along which the contact pads of some of said groups are arranged are parallel with each other.

17. **(new)** The test board of claim 16, wherein the parallel straight lines are parallel with an edge of said test board.

18. **(new)** The test board of claim 17, wherein the straight lines along which the contact pads of said groups are arranged are divided into four groups the lines in each group are parallel to one edge of the text board.

19. **(new)** A test assembly for an integrated circuit package, the test assembly

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comprising:

a package substrate having a plurality of first contact pads adapted for receiving solder bumps and a plurality of first conductors each connecting one pair of said first contact pads to define a first circuit portion; and

a test board having a plurality of second contact pads and a plurality of second conductors each connecting one pair of the second contact pads to define a second circuit portion, the test board further comprising a pair of major test pads and a plurality of minor test pads connected to selected ones of said contact pads;

wherein the second contact pads are divided into a plurality of groups such that all of the second contact pads and all of the associated second conductors in the same group are arranged in a straight line, and the second contact pads at the ends of said straight line are connected to one pair of said minor test pads, respectively; and

wherein, when the package substrate is mounted on the test board with each of said solder bumps soldered to one of the first contact pads and one of the second contact pads, the first and second circuit portions will be connected to define a conductive path that passes through all of the solder bumps which are connected in series in said conductive path by said first and second contact pads and conductors.

20. (new) The test assembly of claim 19, wherein when one pair of the minor test pads connected to the second contact pads at the end of the straight line of one of said groups is probed, only said group of the second contact pads and the corresponding connected first contact pads form a closed circuit through all of the solder bumps therebetween.

21. (new) The test assembly of claim 20, wherein when one pair of the minor test pads connected to the second contact pads at the end of the straight line of one of said groups is probed, said group of the second contact pads and the corresponding connected first contact pads form a closed circuit through all of the solder bumps therebetween, and wherein all of the first and second

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conductors which belong to said closed circuit extend along said straight line.

22. (new) The test assembly of claim 21, wherein said conductive path includes at least one spiral section extending around a central area of the test board.

23. (new) The test assembly of claim 21, wherein said conductive path includes two spiral sections extending around a central area of the test board, an end of one of said spiral sections is connected to an end of the other spiral section by one of said second conductors, the other ends of said spirals sections are connected to said major test pads so that the entire conductive path belong to said closed circuit when said major test pads are probed.

24. (new) The test assembly of claim 19, wherein said conductive path includes at least one spiral section extending around a central area of the test board.

25. (new) The test assembly of claim 19, wherein said conductive path includes two spiral sections extending around a central area of the test board, an end of one of said spiral sections is connected to an end of the other spiral section by one of said second conductors, the other ends of said spirals sections are connected to said major test pads so that the entire conductive path belong to said closed circuit when said major test pads are probed.